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rows, and large wooden bowls, some only half made, were also found, with the remains of turning tools; these were obviously the wreck of a work-shop, which was probably situate on the borders of a forest. These circumstances countenance the supposition that the encroachments of men upon forests destroyed the first barriers against the force of the wind, and that afterwards, according to Sir H. Davy's suggestions, the trees of weaker growth, which had not room to expand, or air and sunshine to promote their increase, soon gave way, and added to the increase.

PORTABLE CORN MILL.

The whole apparatus is contained in an iron case, about twelve inches long, eight broad, and nine deep, with which a man will grind as much flour in about two hours as a family of six persons consume in a week; and from the simplicity of its construction it is not liable to be out of order. Its principle is the same as the common corn mill in use, except instead of stones it has two hardened steel plates cut or grooved in the same manner as grinding stones, but working perpendicularly instead of horizontally.—The corn enters, between the plates near the centre. The moment it enters the running grinding plate begins to crush it, and as both plates are cut on their surfaces like the common mill-stone, the grain becomes continually more and more ground as it passes to the circumference, when it falls into a receiver. The two plates are kept in their position, and true to each other, by a strong iron frame, which frame supports one end of the axle, upon which there is a regulator, which determines the distance between the plates; by turning to the right or to the left, coarse or fine flour is obtained. The portability of this machine, the facility of working it, the quantity and quality of the flour which it produces, renders it one of the most important and useful inventions of this ingenious age. Private families, who wish to have their flour unadulterated, and persons going to, or residing in distant countries, must find it to be an invaluable acquisition.

PRESERVATION OF FROZEN POTATOES.

In time of frost, the only precaution necessary is to retain the potatoes in a perfectly dark place for some days after the thaw has commenced. In America where they are sometimes frozen as hard as stones, they rot if thawed in open day; but if thawed in darkness they do not rot, and lose very little of their natural odour and properties.

CURE OF WOUNDS IN ELM TREES.

Those elms which have running places, or ulcers, may be cured as follows:—Each wound to have a hole bored in it with an augur, and then a tube, penetrating an inch or less, is to be fixed in each. Healthy trees thus pierced give no fluid, but those which are unhealthy yield fluid, which increases in abundance with the serenity of the sky and exposure to the south. Stormy and windy weather interrupts the effect. It has been remarked, that in from twenty-four to forty-eight hours, the running stops, the place dries up, and is cured.

PRESERVATION OF FRUIT TREES FROM HARES.

According to M. Bus, young fruit trees may be preserved from the bites of hares, by rubbing them with fat, and especially hog's lard. Apple and pear trees thus protected, gave no signs of the attacks of these animals, although their feet-marks were abundant on the snow beneath them.

EGYPTIAN AZURE.

This beautiful pigment, which has preserved its brilliancy of tint for more than seventeen hundred years, may be easily and cheaply made:—fifteen parts of the carbonate of soda, with twenty of powdered opaque flints, and three of copper filings, when strongly heated together for two hours, will produce a substance, which, when powdered, will be of a fine deep sky blue, and closely resemble the Egyptian Azure in tint.

SIMPLE SCIENCE.

What is hydrogen gas? and what vulgarly called? Hydrogen combined with, or dissolved in, caloric. It is called inflammable air.

How does it appear that caloric, when added to substances, insinuates itself between their parts, and diminishes their solidity, lessening the solidity more and more, as more of caloric is added? Put ice in a kettle and place it on the fire—this addition of caloric will soon make it liquid; keep it longer on the fire (i. e. add more caloric) and it becomes still less solid, and all fumes away in vapour through the pipe of the kettle. On the same principle caloric melts lead.

How does it appear that the removal of caloric lets the particles of a body which it has separated, close together again, and that thus by taking away caloric you can bring back vapour to a fluid state, and turn a liquid to a solid? Put hot water into a bowl, and turn down a plate or saucer over it. The hot water will send up vapour, and on its reaching the surface of the saucer that is next it, will there part with some of its caloric to the colder saucer, which will absorb it; and the vapour having lost a portion of its caloric, will resume its liquid form, and be found in drops, or a sort of dew on the saucer.

What is soap? Soap is a combination of oil and alkali. Ashballs are the ashes impregnated with potash.

What is nitric acid? and what is it vulgarly called? It is composed of oxygen and nitrogen, or azote; and is vulgarly called *aqua fortis*.

What is nitre? and what is it vulgarly called? Nitre is a salt; and its proper name is nitrate of potash. It consists of *nitric acid* and potash. Nitre is vulgarly called saltpetre.

In what form does nitrous acid appear? Nitrous appears in the form of a gas, or, at least, a vapour; whereas, *nitric acid* is liquid.

In what form does the sulphurous acid appear? When the combustion of sulphur is slow, the flame is blue, and a suffocating vapour: this vapour is sulphurous acid. Sulphuric acid is liquid.

What is the vulgar name of sulphuric acid? Sulphuric acid is vulgarly called oil of vitriol.

Do we ever see pure alumine in nature, as we do pure carbon? *Sapphire* may be said to be *wholly* composed of this earth. It is a mere crystal of alumine. *Sapphire* is blue.

What is ruby? What is oriental topaz? They are but varieties of sapphire, consequently are wholly aluminous.

What is alum? It is a salt. Its proper name is sulphate of alumine, being composed of alumine, (which is its base,) united with sulphuric acid.

Which is the most abundant, and generally diffused of the metals—and where found? Iron; it is an ingredient in almost every rock, from the oldest to the newest; and is also found in many earthly and metalliferous minerals and in all soils.

In what state (however otherwise combined) is iron usually found? Mostly in the state of an oxide; except when combined with sulphur.

What is this combination called? Pyrites: common pyrites, is composed of iron and sulphur, nearly half and half.

What is glass? A compound of silice, and one of the fixed alkalies, completely fused, (i. e. melted) and then suddenly congealed. Silice alone, not mixed with an alkali, could not be completely fused. The fixed alkalies are soda and potash.

Glass is the only known instance of a substance perfectly transparent, produced by the union of two dissimilar and entirely opaque bodies.

ROMAN CEMENT.

By a recent analysis of Parker's Roman Cement, by Monsieur Berthier, he finds that its constituents are of chalk and common clay, and he proposes the manufacture of a similar Cement, by the mere mixture of them in certain proportions:—One part of the clay, and two and a half parts of chalk, sets almost instantly, and may, therefore, be regarded as Roman Cement.